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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 5453-2025

**Textiles - Determination of the permeability of fabrics to air
(English Translation)**

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Foreword

This document was drafted in accordance with the provisions of GB/T 1.1-2020

Directives for standardization - Part 1.Rules for the structure and drafting of
standardizing documents.

This document replaces GB/T 5453-1997 Textiles - Determination of the permeability
of fabrics to air. Compared with GB/T 5453-1997, in addition to structural adjustments
and editorial changes, the main technical changes are as follows.

- The sample pretreatment is added (see 5.2);
- The requirements for calibration tools are added (see 7.6);
- The recommended pressure difference for household textiles is added to the test
conditions (see Chapter 8);
- The calibration process is added (see 9.1);
- The requirements that the front side shall face the air inlet in the test and the test

surface shall be indicated in the report are added (see 9.2);

-- The operations related to fixture leakage are deleted (see 9.5 of the 1997 edition);

-- The rounding of air permeability is modified, and the rounding of air permeability variation coefficient is added (see Chapter 10; see 10.2 of the 1997 edition);

-- Confidence intervals and the presentation of results using differential pressure flowmeter instruments are deleted (see 10.3 and 10.4 of the 1997 edition).

This document is modified in relation to ISO 9237.1995 Textiles - Determination of the permeability of fabrics to air.

Compared with ISO 9237.1995, this document has the following structural adjustments.

-- 7.2 corresponds to 7.2 and 7.3 of ISO 9237.1995, the subsequent article numbers are adjusted forward in order, and 7.6 and 7.7 are added;

-- 9.2, 9.3 and 9.4 correspond to Chapter 9 of ISO 9237.1995;

-- 10.2 corresponds to 10.1, 10.2 and 10.3 of ISO 9237.1995;

-- Appendix A corresponds to Appendix B of ISO 9237.1995;

-- Appendix A of ISO 9237.1995 is deleted.

The technical differences between this document and ISO 9237.1995 and their reasons are as follows.

-- ISO 139.1973 is replaced by the normative reference GB/T 6529 to adapt to technical conditions in China (see Chapter 6);

-- The reference to GB/T 8170 is added to clarify the rounding rule (see 10.1);

-- The reference to GB/T 8629-2017 is added to provide pre-treatment washing methods (see 5.2);

-- ISO 10012.1.1992 is deleted to adapt to technical conditions in China;

-- The sample pretreatment is added to provide reference test conditions for durability testing (see 5.2);

-- The metrological confirmation requirements for test equipment are deleted, and the instrument measurement can be verified according to the relevant

metrological regulations;

- The requirements for calibration tools are added and used for instrument verification (see 7.6);
- A device for calculating and displaying test results is added and used for result calculation and display (see 7.7);
- The recommended pressure difference for household textiles is added to the test conditions to adapt to the expansion of the scope of application (see Chapter 8);
- In order to standardize the operation, the calibration process is added (see 9.1);
- In order to standardize the operation, the requirements that the front side faces the air inlet and the test surface is indicated in the report are added (see 9.2);
- In order to standardize the operation, the rounding rules are added, the rounding of air permeability is modified, and the rounding of air permeability variation coefficient is added (see 10.1);
- Based on actual needs, the requirements of the "10.4 Confidence interval" of ISO

9237.1995 are deleted.

The following editorial changes are made to this document.

- The content related to rubber sheets in Appendix A of ISO 9237.1995 is added to 7.2 as a note, and ISO 48.1994 is replaced with the informative reference GB/T 6031 (see 7.2).

1 Scope

This document describes a method for determining the air permeability of fabrics.

This document applies to a wide range of textile fabrics and products, including clothing fabrics, household fabrics and technical fabrics.

2 Normative references

The provisions of the following documents constitute the essential clauses of this document through normative references in this text. Among them, for referenced documents with dates, only the versions corresponding to the dates are applicable to

this document; for referenced documents without dates, the latest versions (including all amendments) are applicable to this document.

3 Terms and definitions

The following terms and definitions apply to this document.

The velocity of airflow passing vertically through the specimen under the specified sample area, pressure difference and time conditions.

4 Principle

Under the specified pressure difference conditions, the airflow rate vertically passing through the specified area of the specimen within a certain period of time is measured and then the air permeability is calculated.

5 Specimen preparation

If necessary, follow the provisions of the 4N program for type A washing machines in GB/T 8629-2017, use "Standard detergent 3" as the detergent, wash three times in a row and hang to dry, add detergent once, or wash according to the method, drying conditions and number of times agreed upon by the interested parties.

6 Standard atmosphere for conditioning and testing

The standard atmosphere used for conditioning and testing shall comply with the requirements of GB/T 6529.

7 Equipment

Flow meter, volume counter or other measuring instruments. It is used to measure the airflow rate through the specified area, expressed in dm³/min (L/min). The tolerance shall not exceed $\pm 2\%$.

8 Test conditions

The recommended test conditions are.